PROGRAM EFFECTIVE LTM
Progressing to the Next Level

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Introduction

Severe weather conditions in interior Alaska have long posed a problem to efficient long term monitoring of contaminated sites. Utilizing varying construction techniques for both flush mounted and riser-type monitoring well applications has met with limited success in preventing well damage due to frost jacking, with no one technique substantially improved over another. Replacement of damaged wells has been a continuing effort over the years as the replacement wells, susceptible to the same conditions, eventually fall victim to cold weather related damage. As a solution to this problem, Eielson AFB is using push point applications as a means to gather monitoring data where permanent MW's have been damaged, in lieu of replacement with conventional-type MW's. Regulator acceptance of data gathered by the push point method has led our program to plan for the progressive phase-out of conventional monitoring wells, relying instead on push point monitoring techniques for the program. Rapid site characterization capabilities provided by push point technology, and the relative ease of attaining site soil vapor levels is an efficient means of gathering data with which to calculate the risk potential for indoor air vapor intrusion. Indoor air vapor intrusion potential into new structures (as well as existing structures) is being evaluated in our program as a means to require site characterization as a construction project associated responsibility in assessing suitable siting locations for construction. Using site characterization as a project requirement prior to construction, we are proposing during our FY03 5-Year ROD Review that LTM in the program be required largely as an event driven requirement instead of the present regularly scheduled requirement. This would allow more program funds to be directed to cleanup operations. This proposal and how we plan to progress to this level is the basis of the presentation.

Discussion

In 1994 Eielson AFB, under contract to the Cold Regions Research and Engineering Laboratory (CRREL), installed in excess of 300 1" diameter micro wells as a means of quickly evaluating current site contaminant conditions prior to selection of remedial alternatives presented in the Proposed Plan phase of the CERCLA process. In 2001 larger diameter (1-1/2") push point wells were successfully used during a Phase I RPO for evaluating the remedial progress of three major bioventing systems. Soil vapor samples were collected and on-site analysis performed utilizing field GC capabilities, as well as collection of groundwater samples sent off-site for laboratory analysis. Prior to using the push point application method, work plans were developed with the assistance of the EPA and state regulatory program managers, and data generated by the push point method was reviewed and considered acceptable by the regulatory agencies. Further push point -type site characterization for groundwater contamination associated with former anti-aircraft artillery site operations was approved and the data accepted by the state regulatory agency, prompting Eielson AFB to consider using push point technology as the primary means for future site monitoring requirements, eventually replacing conventional monitoring well applications.

Construction project funds required to deal with contaminant removal and disposal is an issue yet largely unresolved to date. Costs for staging and disposal of project generated contaminants often falls to base operations due to insufficient project funds to address environmental impacts to the project. To maintain base compliance with contaminant storage and disposal regulations, base operating capital is often reallocated away from validated projects to deal with these unbudgeted construction requirements. Recently, the potential for indoor air vapor intrusion into structures located on contaminated sites has become an issue with both state and EPA entities nationwide. Because it looks as if site characterization to determine the suitability of a contaminated site for construction will become a requirement prior to siting approval, this seems an opportune time to push these site characterization costs into the construction project costs, shifting this requirement to the responsibility of the project.

Site characterization for evaluating the potential for indoor air vapor intrusion can, in effect, be considered a formal site monitoring event when the data is shared with the base environmental flight and therefore raises the issue of the value of regularly scheduled site monitoring as opposed to event driven monitoring. Given required site conditions to qualify for event driven monitoring, this scenario would not pose a fundamental change to a Record of Decision document that requires long term monitoring, but will instead pose an Explanation of Significant Difference (ESD) to the ROD as monitoring at a qualified site, although vastly reduced, remains a requirement yet is limited to specified criteria. If accepted in some variation, this concept seems a promising avenue to redirect funds away from costly frequent monitoring to the many un-funded program cleanup requirements.

Conclusion

Although not universally applicable to all site conditions, push point technology has shown to be a reliable method for site characterization under appropriate conditions, providing rapid turn-around time for site generated data and providing a reliable and efficient means of collecting samples for laboratory analysis. Due to it's versatility, it has reached it's potential to replace conventional monitoring well technology as the primary means of conducting long term monitoring at Eielson AFB, AK.

Event driven monitoring, as a program, is being considered by Eielson AFB as a means of directing monitoring costs away from ERA funding and largely into construction project requirements. New requirements for evaluating the potential for indoor air vapor intrusion prior to siting approval may, in the near future, make this possible. Drivers requiring site monitoring events such as construction projects, changing site conditions, and proposed land use scenarios, if accepted by the regulatory community, show promise in vastly reducing the current level of monitoring activity in the program, allowing program funds to be placed where they need to be, in cleanup. This concept, briefly discussed with the regulatory agencies, shows real promise of acceptance provided acceptable contaminated sites management is demonstrated by the Air Force.